April 2015
From: Magriples, Nick
Sent: Thursday, April 02, 2015 5:05 PM
To: EricJ Wilson
Cc: Rotola, Joe; Carpenter, Angela
Subject: Niagara Falls Rad sites source information

Here is some information pertaining to the three Niagara Falls sites. I've also included Upper Mountain Road since it may have helpful information for the other two sites. Keep in mind that we have soil/slag samples for each that a rad expert may be able to use for comparisons. A report provided below provides data from the Union Carbide Site.

According to summaries prepared by Pre-remedial:

For the Upper Mountain Road Site, it was indicated that in October 1984, 100 elevated gamma radiation anomalies in the Niagara Falls area were recommended for an on-site survey by Oak Ridge National Lab (ORNL) to determine if the elevated levels of radiation may be related to the transportation of radioactive waste materials to the Lake Ontario Ordnance Works for storage. The material at the Site was identified as a phosphate slag material. This rocky-slag was material used for bedding under asphalt surfaces and in general gravel applications. Samples identified the presence of radium-226, uranium-238 and thorium-232. Based on the analytical results of soil and rock samples, and the approximately equal concentrations of radium-226 and uranium-238, it was indicated by ORNL that the material probably originated from a singular source. The origin of the elevated concentration of thorium-232 was unknown, but it was postulated its source was from some type of mineral extraction activity in the Niagara Falls area. According to the ORNL report, this rocky-slag waste material was once involved in the electrochemical production of elemental phosphorus using uranium-bearing raw materials and reportedly originated from the former Oldbury Furnace in Niagara Falls. The report indicated that the anomaly was not related to materials connected with the Niagara Falls Storage Site (NFSS), including materials that were transported to NFSS. [entire paragraph almost verbatim from pre-remedial report]

A question/answer I found in an Army Corps document for the NFSS had this to say:

I've heard there is "radioactive slag" in roads and parking lots around Niagara County. Is this from the NFSS?
No. The slag material found is not related to the NFSS or the materials brought to the NFSS by the federal government. Slag has been used as a cheap and plentiful bedding material under paved road surfaces. Slag is a rocky-gravelly byproduct from commercial processing of metal ores. The processing of ores can concentrate naturally occurring radioactive elements found in the earth. This results in the slag having elevated radioactivity. The U.S. Department of Energy investigated areas of elevated radioactivity in Niagara County. They found slag with elevated radioactivity present at 62 locations in Niagara County. This was determined to be a phosphate slag material previously identified as cyclowollastonite. This slag material is attributed to the electrochemical production of elemental phosphorus using uranium-bearing raw materials which reportedly originated from the former Oldbury Furnace in Niagara Falls (see the U.S. Department of Energy *"Results of Radiological Measurements Taken in the Niagara Falls, New York, Area (NF002), November 1986"*)

For the Holy Trinity Cemetery and Niagara Falls Boulevard sites, it was indicated that in 1978 the DOE conducted an aerial radiological survey of the Niagara Falls region and identified more than 15 properties with elevated levels of radiation above background. The report indicates that it is believed that, in the early 1960s, slag from the Union Carbide facility located on 47th Street in Niagara Falls was used as fill on the properties prior to paving. The Union Carbide facility processed ore containing naturally-occurring high levels of uranium and thorium to extract niobium. Union Carbide eventually obtained a license from the Atomic Energy Commission and the State of NY; however, the slag had been used as fill throughout the Niagara Falls region prior to licensing. [entire paragraph almost verbatim from pre-remedial report] Attached to this email is a NYS memo that relates to the potential sources of the material.

FYI….the Union Carbide facility and the Oldbury Furnace were located across the street from each other.

The following three articles are pertinent with respect to company names:

http://www.niagara-gazette.com/news/local_news/article_41b84915-cd39-543a-bb0a-60c4a0f15472.html?mode=jqm (2006)

http://artvoice.com/issues/v12n31/news_briefs/greenpac_nf_waste (2013)

http://artvoice.com/issues/v5n21/notes_from_the_underground (2006)

The following is a preliminary survey of the Union Carbide facility in Niagara Falls (1980) conducted by Oak Ridge.

http://www.google.com/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=2&cad=rja&uact=8&ved=0CCQQFjAB&url=http%3A%2F%2Fwww.lm.doe.gov%2FConsidered_Sites%2FE%2FElectromet_Corporation_-_NY_04%2FNY_04-6.pdf&ei=Dy0QVeLjDYSbNo_igcAG&usg=AFQjCNGHAuDbdjQqFx5UuhQK0jyYIdyJ7w

Attachments:

- Niagara Falls Blvd 1979MAY24-Correspondence from State on NY Energy Office - Uranium Ore Residues in Niagra Falls.pdf

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March 2015

Here is some total cost info from the Welsbach NPL site for that site.

From: Magriples, Nick
Sent: Wednesday, March 25, 2015 6:53 AM
To: Rotola, Joe; EricJ Wilson
Subject: Rad.....**part 1**

Here's an excerpt from the 2011 ROD from Welsbach: Alternative 3 (Demolition) would be significantly more expensive to implement than Alternative 2 (Decontamination). The estimated capital cost for Alternative 2, which involves removal of approximately **90 cy** of radiologically contaminated building materials, **is $3,500,000**. The estimated capital cost for Alternative 3, which involves demolition of the Armstrong Building and disposal of approximately **15,600 cy of construction debris/building rubble and 3,900 cy of radioactive waste, is $103,000,000.**

More to follow…….
These are my rough estimates for NFB just for T&D and if only the material in the parking lots were to be disposed of.

From: Magriples, Nick
Sent: Wednesday, March 25, 2015 7:30 AM
To: Rotola, Joe; EricJ Wilson
Subject: CONFIDENTIAL - Rad costs....**Part 2**

Here are some rough disposal cost estimates for one of our rad sites (NFB). The basis for these estimates was obtained through the Welsbach site. The waste at Welsbach, for which a contract currently exists, is considered Non-Source Material (with thorium concentrations <57 pCi/gm). Qualifier: these specific cost numbers and the soil/waste concentration are only relevant for the Corps contract for the Welsbach Site. They are being used here just to get an approximation of the cost. The cost for disposal of "Non-Source Material", low activity radioactive waste (LARW), at Welsbach is $84.50/yd, while the cost for disposal of low activity mixed waste (LAMW), material that failed TCLP, is $110/yd. The transportation costs are $160/ton via rail to Idaho.

According to the NRC, "Source Material" is identified as either the element thorium or the element uranium, provided that the uranium has not been enriched in the isotope uranium-235. Source material also includes any combination of thorium and uranium, in any physical or chemical form, or ores that contain by weight one-twentieth of one percent (0.05 percent) or more of uranium, thorium, or any combination thereof. Depleted uranium is considered source material.

Max concentrations from soil borings conducted at NFB by pre-remedial were as follows:
U-238 – 196 pCi/g
Th-230 – 150 pCi/g
U-233/234 – 179 pCi/g
Ra-226 – 199 pCi/g
Th-232 – 541 pCi/g
Ra-228 – 807 pCi/g
Th -228 – 554 pCi/g
U-235/236 – 10.7 pCi/g

Approximate costs were obtained outside of the Welsbach site for "Source Material". Handling disposal through an Army Corps. contract - Multiple Award Radiological Transport and Disposal (MARTADS) (a new one is coming out in the near future from the Baltimore District for the Idaho facility), the cost would be a little over $300/yd including transport. Doing it outside of a contract such as this, the cost would likely be $300/yd without transportation. There are facilities in Utah and Texas also.

According to pre-remedial, the material that was identified with radioactivity at >2x background covered an area of approximately 168,000 sq.ft. The borings indicate that the slag is present at depths ranging from 1 to 2.5 feet. Assuming the total depth of slag is on average two feet, the approximate total volume would be 12,450 yds. This does not include any other soils or material with radioactivity at <2x background.

Scenario 1 for Non-Source Material under the current contract used for Welsbach
Assume 1) 1 yd = 1 ton since no knowledge of density of material **(if it is heavier, transport costs would increase)**
2) all waste is handled as Non-Source Material
3) the volume requiring disposal is based on material that contains radioactivity at >2x background **(THIS MAY OR MAY NOT BE TRUE)**
4) $84.50/yd for disposal and $160/ton for transport by rail
T&D cost rounded = $2.8M

Scenario 2 for Source Material handled through new Corps. Contract
Assume 1) 1 yd = 1 ton since no knowledge of density of material
2) all waste is handled as Source Material
3) the volume requiring disposal is based on material that contains radioactivity at >2x background **(THIS MAY OR MAY NOT BE TRUE)**
4) $320/yd for disposal and transport by rail
T&D cost rounded = $4M

Scenario 3 for Source Material not handled through new Corps. Contract
Assume 1) 1 yd = 1 ton since no knowledge of density of material **(if it is heavier, transport costs would increase)**
2) all waste is handled as Source Material
3) the volume requiring disposal is based on material that contains radioactivity at >2x background **(THIS MAY OR MAY NOT BE TRUE)**
4) $300/yd for disposal and $160/ton for transport
T&D cost rounded = $5.7M

January 2015

From: MUSANTE, JASON
Sent: Monday, January 05, 2015 3:31 PM
To: Magriples, Nick
Subject: Rad action levels

Hi Nick –

Good talking with you today. Please find attached a copy of selected pages from the START Assessment report. Section 5 discusses the modeling with ResRad and the EPA PRG Calculator.

I have the ResRad Model Parameters and Graphical Output files and the PRG Calculator Model Input and Output files available, if needed.

Also I've attached a copy of selected pages from the START Removal report:
I can provide any of the associated appendices if needed.

As we discussed, I would recommend contacting Region 4 OSC Terry Stilman (404.562.8748) regarding the phosphate sites he was looking at in Florida.

Good luck and please feel to contact me anytime!

JASON MUSANTE
FEDERAL ON-SCENE COORDINATOR
U.S. EPA Region IX - Los Angeles
213.479.2120
musante.jason@epa.gov

Attachments:

- Skyline Removal Report 031912.pdf
- Pages from FINAL_SKYLINE SUMMARY REPORT.pdf
- Skyline AUM AM 09-27-10 final NO EC.pdf

September 2014

Paul Giardina Email

> **Subject: A Comparison of the RESRAD Code and the EPA PRG Calculator for Cancer Risk Calculations for Radionuclides & A comparison of NRC's Screening Soil Concentrations and EPA's Trigger Soil Concentrations**

To All:

In response to several inquiries over the recent past I am sending out three files. These hopefully will be useful in dealing with issues related to cancer risk and radionuclides.

The first two attachments are from a recent presentation made at the Health Physics Society meeting and they provide a useful and very telling comparison between the RESRAD code and the Preliminary Remedial Goal (PRG) Calculator

tool. I suggest that if and when you need to work with cancer risk and radionuclides that you carefully review the second handout. I think you will see from the conclusions that the PRG may be inappropriate for use when dealing with many radionuclides.

The last attachment compares the NRC's Screening Soil Concentrations based on a 25 mrem/yr dose vs. EPA's Trigger Soil Concentrations based on 1/10,000 cancer risk. To those of you to whom we have previously supplied this you are probably not surprised that the NRC 25 mrem/yr screening levels are more conservative than the EPA trigger values for all but 4 of the 36 radionuclides compared. Further, for Th-232, Ra-226, and total U the EPA trigger levels default to a standard that does not put these values in the 1/10,000 risk range.

We are available in the Radiation & Indoor Air Branch to help you and your staff assure that when looking at the cleanup of radionuclides that you choose levels that are protective of public health and the environment.

Paul A. Giardina, Chief
Radiation & Indoor Air Branch

Attachments:

- Comparison of EPA Risk and NRC Dose Comparison of EPA risk and NRC dose soil numbers.BOLD.doc
- HPS2014-2 (2).pdf
- HPS2014 title (2).pdf

July 2014
From: Walker, Stuart
Sent: Wednesday, July 30, 2014 11:41 AM
To: Smith, Lora
Cc: Magriples, Nick
Subject: RE: This guidance should be read by anyone working on CERCLA risk assessment for radiation at a remedial site RE: Transmittal of the Radiation Risk Assessment At CERCLA Sites: Q & A

The 12 mrem/yr figure is just for evaluating whether or not an ARAR is presumptively protective. You wouldn't use it for a risk assessment. You would use the PRG calculator. Do you want to talk today? I have a 1 pm call with another region, otherwise I am available.

From: Smith, Lora
Sent: Wednesday, July 30, 2014 9:07 AM
To: Walker, Stuart
Cc: Magriples, Nick
Subject: RE: This guidance should be read by anyone working on CERCLA risk assessment for radiation at a remedial site RE: Transmittal of the Radiation Risk Assessment At CERCLA Sites: Q & A

Hi Stuart,

I have a question I was hoping maybe you could answer. I see that the dose corresponding to an ELCR of 3E-04 is now 12 mrem/yr, based on a 30 year residential exposure in the updated guidance. Could I adjust the dose for a shorter exposure period, like 6 years for a child or 25 years for a commercial worker? I also have some site-specific exposure pathways which differ in exposure duration from these defaults. By my calculation, I'm getting ~59 mrem/yr for the child. Is this appropriate? Thank you!

****
Regards,

Lora M. Smith-Staines, Ph.D.
U.S. Environmental Protection Agency, Region 2
Emergency and Remedial Response Division
Superfund Program
290 Broadway, 18th Fl.
New York, N.Y. 10007

212.637.4299 (office)
212.637.3083 (fax)

From: Walker, Stuart
Sent: Monday, July 28, 2014 6:31 PM
To: OSWER OSRTI Radiation Site Decision-Makers; OSWER OSRTI Regional Radiation Contacts; Brown, Ernie; Garvey, Melanie; Fitz-James, Schatzi; Schumann, Jean; Schlieger, Brian; Mott, Timothy; McEaddy, Monica; Cheatham, Reggie
Cc: Scozzafava, MichaelE; Anderson, RobinM
Subject: This guidance should be read by anyone working on CERCLA risk assessment for radiation at a remedial site RE: Transmittal of the Radiation Risk Assessment At CERCLA Sites: Q & A
Importance: High

Please note that the revised Radiation Risk Assessment A&A has been posted to the internet. The guidance can be found at this website:
http://www.epa.gov/superfund/health/contaminants/radiation/pdfs/Rad%20Risk%20QA%20with%20transmit%20memo_June_13_2014.pdf

It is the first guidance listed on the Superfund Radiation Risk Assessment webpage
http://www.epa.gov/superfund/health/contaminants/radiation/radrisk.htm

This document should be read by anyone involved in the risk assessment process at a radioactively contaminated CERCLA remedial site.
So PASS THIS on to your contractors, state contacts, PRPs, etc. that are involved in the risk assessment process at your radioactively contaminated CERCLA sites.

From: Walker, Stuart
Sent: Friday, June 13, 2014 5:49 PM
To: OSWER OSRTI Radiation Site Decision-Makers; OSWER OSRTI Regional Radiation Contacts; Brown, Ernie; Garvey, Melanie; Fitz-James, Schatzi; Schumann, Jean; Schlieger, Brian; Mott, Timothy; McEaddy, Monica; Cheatham, Reggie
Cc: Scozzafava, MichaelE; Anderson, RobinM
Subject: FW: Transmittal of the Radiation Risk Assessment At CERCLA Sites: Q & A

Please see below an email sent out today on the revised Radiation Risk Assessment Q&A. This document should be read by anyone involved in the risk assessment process at a radioactively contaminated CERCLA remedial site. I will send another email when this is posted on the Internet.

From: Williams, Thea
Sent: Friday, June 13, 2014 4:41 PM
To: Walker, Stuart
Subject: FW: Transmittal of the Radiation Risk Assessment At CERCLA Sites: Q & A

From: Williams, Thea
Sent: Friday, June 13, 2014 4:31 PM

To: OSWER SF Reg DDs
Cc: Stanislaus, Mathy; Natarajan, Nitin; Breen, Barry; Stanton, Larry; Johnson, Barnes; Lloyd, David; Cheatham, Reggie; Hoskinson, Carolyn; DeLeon, Rafael; Kling, David; Michaud, John; OSWER OSRTI IO; OSWER SF Reg Branch Chiefs; Price, Lisa; Williams, CarolynE; OSWER OSRTI NARPM Co-Chairs; Flynn, Mike
Subject: Transmittal of the Radiation Risk Assessment At CERCLA Sites: Q & A

On behalf of Robin H. Richardson, Acting Director of the Office of Superfund Remediation and Technology Innovation (OSRTI), I am transmitting the *Radiation Risk Assessment At CERCLA Sites: Q & A.* OSRTI developed this document to present an overview of current EPA guidance for risk assessment and related topics for radioactively contaminated CERCLA remedial sites.

If you have any questions regarding this document, please contact Stuart Walker at 703-603-8748 or walker.stuart@epa.gov.

Thank you,

Thea Johnson Williams, Special Assistant
Office of Superfund Remediation and Technology Innovation
Office of Solid Waste and Emergency Response
US Environmental Protection Agency

703-603-8801
williams.thea@epa.gov

July 2014
While the directive attached below pertains to licensed NRC sites, the logic flow gives you an idea of where EPA is coming from with respect to rad. The 1st paragraph on page 8 actually is one of the rare citations pertaining to removal actions.

From: Magriples, Nick
Sent: Monday, July 21, 2014 1:41 PM
To: Rotola, Joe; EricJ Wilson
Subject: Rad question to Hqtrs

Page 8, 1st paragraph of the document attached below is the most significant statement I've seen with respect to the removal program (do what you do at other removals).

http://www.epa.gov/superfund/health/contaminants/radiation/pdfs/nrc.pdf

My question to Hqtrs mgmt. pertaining to radiation and the removal program would be as follows….is it appropriate and should the 15 mrem/yr radiation cleanup goal also automatically be considered an RML or trigger for a removal action since it equates to 3x10-4 risk.

Attachments:

- Interim Final Evaluation of Facilities currently or Previously Licensed NRC Sites under CERCLA Memo- Feb 2000.pdf

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May 2014
From: Fessler, Andrew
Sent: Wednesday, May 21, 2014 3:04 PM
To: Magriples, Nick
Subject: FW: 9540 Niagara Falls Blvd., Niagara Falls (former Dunn Tire)

Nick, see below for what Niagara County documented from their visit. I believe one of the reports from SAT on the OneDrive has the employee count and general working hours of the bowling alley as well. I'm not sure we have documented all the info you need, but let me know if there's something else and I can ask SAT if they can recollect any particulars.
From: Paul Dicky [mailto:Paul.Dicky@niagaracounty.com]
Sent: Wednesday, May 21, 2014 9:51 AM
To: Fessler, Andrew
Subject: Fwd: 9540 Niagara Falls Blvd., Niagara Falls (former Dunn Tire)

Andrew, per your 5/20/2014 email request, I documented my visit by preparing the attached email.
Paul

>>> Paul Dicky 4/29/2014 10:30 AM >>>
Apr 29, 2014 9:00 Spoke with Bill Burg, owner of Greater Niagara Building Center...and tenant at above address. Mr. Burg said the landlord has made him fully aware of the radiation concerns on the property including the special concerns with utilizing the office space on the west side of the building. Mr. Burg said he was contemplating demolition of the building addition in order to create more parking near the front of the building. I told him that would be possible but would require special precautions and coordination with State DEC/DOH and prior notification to these agencies.

Yesterday, I was on site (4-28-2014 10:00) Met with Andrew Fessler / USEPA at Dunn Tire Site to observe a radon test (this was follow up to core samples collected late last year. The information gathered will be assessed by their remediation branch to make a determination as to whether any removal actions are recommended. Rad 7 instruments were set up on the parking lot behind bowling alley (at source) two were setup side by side in church parking lot east of site (serving as a duplicate sample). A background sample was set up across NFB slightly to west in NFB right-of-way. After the four hour sampling is complete, they will be set up at second locations ...source location(s)/downwind location for addition data. Weather permitting, they will move to Trinity Cemetery and Upper Mt. Rd. Address. over next few days. NYSDOH Sarah Koch also stopped in to review EPA sampling. We spoke briefly with John (partner and brother to business owner Bill Burg). He said he was fully aware of the radiation concerns and is not utilizing the office space that recorded higher readings. He mentioned a possible plan.... a partial building demo of that office portion...but had no details.

Paul R. Dicky, P.E.
Supervising Public Health Engineer
NCDOH -Div. of Environmental Health
5467 Upper Mountain Road, Suite 100
Lockport, NY 14094-1894
(716) 439-7595
www.niagaracounty.com/health

April 2014
From: Magriples, Nick
Sent: Friday, April 25, 2014 4:03 PM
To: gpsutton@gw.dec.state.ny.us

Cc: Rotola, Joe
Subject: FW: Schedule for RAD Air Monitoring

As per Joe's request, attached is pre-remedial's schedule for the three rad sites, including their objective. I will show up for the Removal Action Branch on Wednesday with Laura Smith (EPA risk assessor) to recon the three sites as part of the removal assessments.

From: Fessler, Andrew
Sent: Friday, April 25, 2014 1:51 PM
To: Smith, Lora; Magriples, Nick; John Mitchell; Kenneth Martin; Stephen M. Gavitt; paul.dicky@niagaracounty.com
Cc: tbrice@gw.dec.state.ny.us; Hauptman, Mel; Moyik, Cathy
Subject: Schedule for RAD Air Monitoring

Hello Everyone,

Due to the forecast next week, we will begin air monitoring on Monday 4/28 in order to get ahead of the weather. Below is the schedule for the air monitoring:

Monday: Holy Trinity Cemetery
Tuesday: Niagara Falls Boulevard
Wednesday: Upper Mountain Road

If we encounter rain, we will hold off until the rain stops.

Here is a summary of the sampling:
In order to evaluate possible observed release to the air migration pathway, Region 2 SAT will take Radon-220 (a.k.a Thoron) and Radon-222 measurements at and near the source area and at background locations using a RAD7 Radon Detector. Thoron is a gaseous (i.e. vapor pressure ≥ 10-9 Torr) radioactive isotope progeny of Thorium-232 and Radon-222 is a gaseous radioactive progeny of Uranium-238. In accordance with HRS, the observed release to the air migration pathway is defined by site-attributable radionuclide concentrations that equal or exceed a value two standard deviations above the mean site-specific background concentration.

If you have any questions, please let me know. I will be there on Monday, so if you need to contact me you can call my number below (it will forward to my cell phone).

Thanks,
Andrew

Andrew Fessler
EPA Region 2
ERRD-SPB-PRS
290 Broadway
New York, NY 10007
(212)637-4333

July 2013
Mormon Farms Action Memo:
This has language and references pertaining to what was then the 15 mR/yr number. Attached to the Action Memo is a detailed removal assessment report conducted by their contractor, including sampling and the use of models.

http://www.epa.gov/region6/6sf/newmexico/grants/mormonfarms/mormon-farms-action-memo.pdf

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August 1997
The 1997 Luftig memo.

http://www.epa.gov/rpdweb00/docs/cleanup/rad_arar.pdf

Attachments:

- 1997 Luftig memo.pdf

All files as of 06/19/15:

- Comparison of EPA Risk and NRC Dose Comparison of EPA risk and NRC dose soil numbers.BOLD.pdf
- HPS2014-2 (2).pdf
- HPS2014 title (2).pdf
- Skyline Removal Report 031912.pdf
- Pages from FINAL_SKYLINE SUMMARY REPORT.pdf
- Skyline AUM AM 09-27-10 final NO EC.pdf
- Niagara Falls Blvd 1979MAY24-Correspondence from State on NY Energy Office - Uranium Ore Residues in Niagra Falls.pdf
- Interim Final Evaluation of Facilities currently or Previously Licensed NRC Sites under CERCLA Memo- Feb 2000.pdf
- 1997 Luftig memo.pdf
- Region 06 Mormon Farms Action Memo.pdf
- Niagara Falls Radiation Sites.pptx